
Design Guidelines for Manually Operated Conveyor Belts Tensioning Mechanism for Use in Coal Mines

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DESIGN GUIDELINES FOR MANUALLY OPERATED CONVEYOR BELT TENSIONING MECHANISM

The following design criteria is to be used to implement the requirement that the tensioning device of a manually operated take-up winch must not spin uncontrollably when under tension. This requirement shall come into force on 1st July, 1989, reference CM87/188 date 20th February, 1987.

The intention is to eliminate the potential for a hazardous situation to occur with personnel operating large diameter hand wheels used with small reduction manually operated winches.

DETAILS

In order to satisfy the above requirements, it will be necessary to comply with the following guidelines:-

- (1) The overall design is such that tensioning can be done safely by one (1) person, without undue effort, regardless of whether the belt is running or stationary.
- (2)
 - (a) The hand wheel must be a fully enclosed disc having a smooth surfaces to ensure that the wheel cannot be sprogged or persons exposed to risk of injury by entrapment.
 - (b) The maximum permitted diameter of the hand wheel is 600mm.
 - (c) Crank handles or protrusions or spokes are not to be used in conjunctions with or as a hand wheel.
- (3) If a pawl or ratchet is used to hold the hand wheel stationary then it must be safely and simultaneously accessible to the person operating the hand wheel.
- (4) The addition of a brake to control the release of tension is permitted.
- (5) Disconnection of the hand wheel from the drive and use a brake when releasing tension is considered a good approach, provided that the hand wheel cannot accidentally engage.
- (6) If a system is capable of being operated both manually and under power operation then a fail safe system of disconnecting the hand wheel before the power operation can commence must be provided.
- (7) The foregoing requirements also apply where a manually operated tensioning device is used in conjunction with a counterweight tensioning system.
- (8) A fully operated system that contains no manual device is permitted.

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